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Molecular Biologist Dr. Keerti S. Rathore's Visit to Ecuador

Report Categories:

Biotechnology

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Report Highlights:

A U.S. molecular biologist Dr. Keerti S. Rathore visited Ecuador November 5-12, 2011. Dr. Rathore's visit received positive media coverage within Ecuador and in other countries.

BACKGROUND

A U.S. molecular biologist Dr. Keerti S. Rathore, visited Ecuador November 5-12, 2011. During his time in Ecuador he lectured at the Army Polytechnic School of Ecuador (ESPE) and participated in several meetings with Ecuadorian researchers in the field of agricultural biotechnology. Dr. Rathore's recent scholarship has focused on emerging trends in biotechnology to enhance cotton, rice, and sorghum crops. Dr. Rathore is currently an associate professor and director at the Institute for Plant Genomics & Biotechnology, Texas A&M University. Dr. Rathore is especially well-known for having developed a molecular technique to eliminate the toxin gossypol from cotton making it possible to potentially use this crop for food and feed. Ecuadorian media and international news agency EFE provided coverage of this visit. This report includes some relevant facts about the media coverage.

Dr. Rathore visited Ecuador sponsored by the Foreign Agricultural Service's Scientific Exchanges Ecuador Program. While in Ecuador, Dr. Rathore also supervised the work of Ecuadorian researcher Monica Jadan who is a recipient of a research scholarship under the Scientific Exchanges Program. These exchanges aim at promoting food security and economic growth by increasing scientific knowledge and research to improve agricultural productivity around the world. Research areas include plant pathology, entomology, veterinary science, microbiology, food security, agricultural biotechnology, global climate change, among others.

ECUADORIAN AND OTHER LATIN AMERICAN NEWSPAPERS AND ONLINE NEWS SOURCES PICKED UP STORIES PUBLISHED BY EFE, THE SPANISH WIRESERVICE.

A translation of the EFE's news story is offered next.

Cottonseed, a source of nutrients for human consumption

Quito, (EFE). - Flour from cottonseed has the potential to feed millions of people after undergoing a procedure to eliminate its toxicity which is being researched by molecular biology expert at the University of Texas A & M, Keerti Rathore. This expert has begun feeding shrimp with the special seeds, as part of series of studies that he hopes will culminate with cottonseed flour in the bowls on humans' dining tables.

"The amount of cottonseed produced worldwide could satisfy the basic requirements for proteins of 500 million people," Rathore said in an interview with EFE during a visit to Quito, as part of an exchange program sponsored by the U.S. Government. On a planet that has just passed the threshold of the 7,000 million inhabitants and has suffered significant increases in food prices in recent years, finding an untapped source of nutrients is a very tempting prospect.

The idea is of particular interest for more than 20 million cotton growers, especially in countries like China, India, USA, Brazil and Argentina, who now collect white fiber but waste the leftovers. Rathore shouted "Eureka" after 10 years working in his lab at the Texan university, after having to for some time shelve the project and work on it as a hobby following initial failures.

Cotton has glands that secrete gossypol, a toxic compound that helps it defend against pests and most herbivores including, so far, human beings. About 50 years ago, botanists obtained a plant free of gossypol, by crossing a wild variety of cotton with commercial varieties. It was an exciting time, which led to studies in humans in Africa, India and Central America, where it was given to children. These studies proved that the cottonseed was a good nutrient without adverse effects, said Rathore. At the University of Texas A & M, a volunteer group salted the seeds "most of them liked the flavor," he said. However, the project failed because the succulent cotton plants were easy prey for all kinds of insects.

Genetic engineering needed to arrive to solve the problem, from the hands of India's born Rathore, who in 2000 "silenced" the gene responsible for the production of gossypol in the seed only, keeping the glands with the protection compound in the other tissues. Since then, his team of five people has grown eight generations of the special seed, both in greenhouses and outdoors, and has concluded that the genetic peculiarity "is stable and transmissible."

With his discovery Rathore seeks to change the relationship between man and cotton, a plant native to Africa that has been grown for its tissue for 7,000 years, but which produces 1.6 times more seed than fiber. Currently the seed oil is used for human consumption, because it is possible to remove the gossypol by mechanical and chemical means, while the rest is given to cows, which are able to digest it thanks to the powerful four compartments of their stomach. However, cattle are a very inefficient vehicle for the processing of food, since they need 5.8 kilograms of feed to produce 1 kilogram of meat. In contrast, the proportion in chickens is 2 to 1, and in some fish such as salmon it is about 1 to 1. For its combination of amino-acids, shrimp especially likes the seed, which Rathore will also offer to chickens and pigs in future studies, he said. However, he believes that it will take ten years to meet all safety requirements imposed by U.S. regulatory agencies and thus release the seed to market, despite of Washington being the most tolerant place for genetically modified foods. In Europe, where opposition to humans altering the genes of what we eat is concentrated, it is expected it will take much longer. EFE.

MEDIA COVERAGE

Ecuador's major newspapers had a story covering Dr. Rathore's visit on their Sunday's editions. Sundays are the day of the week with the largest number of printed newspapers delivered and read. The list of newspapers includes El Comercio, El Universo, Hoy, and El Norte. It is estimated that at least 350,000 people had access to the news story. El Comercio also has an online edition and hung the story on its Website. As of December 23, 2011, the article had been accessed 6,209 times.

An incomplete list of Ecuadorian and Foreign media outlets (mostly online) that covered the story is provided next.

ECUADOR

PRESS

DIARIO EL UNIVERSO

1. <http://www.eluniverso.com/2011/11/13/1/1384/semilla-algodon-fuente-nutrientes-alimentacion-humana.html>
2. <http://www.eluniverso.com/2011/11/12/1/1416/elaboran-semilla-algodon-comestible.html?p=1416&m=2392>

DIARIO EL COMERCIO

1. http://www.elcomercio.com/tecnologia/algodon-pudiera-volverse-alimento-ciencia-investigacion-algodon-Espe_0_589741056.html

DIARIO HOY

1. <http://www.hoy.com.ec/noticias-ecuador/no-todos-los-transgenicos-son-maravillosos-ni-malos-513982.html>
2. <http://www.hoy.com.ec/noticias-ecuador/espe-avanza-hacia-la-biotecnologia-513989.html>

DIARIO EL NORTE

1. <http://elnorte.ec/inicio/ecuador/12964-el-algodon-sera-alimento-segun-investigador.html>
2. <http://elnorteinformaparaelmundo.com/?p=24485>

DIARIO EL PRODUCTOR

1. <http://elproductor.com/2011/11/12/elaboran-una-semilla-de-algodon-comestible/>

BLOGS

1. <http://blogs.espe.edu.ec/blog/2011/11/15/la-semilla-de-algodon-una-fuente-de-nutrientes-para-la-alimentacion-humana/>
2. <http://proyectoalimenticio.blogspot.com/>

RADIO

1. http://www.multimedios106.com/nota_ind.aspx?id_modulo=11&id_catgeneral=39&id_detmodulo=43010
2. [Multimedios ADN BIOLOGIA MOLECULAR 11/08/2011](#)

PERU

INFORMATION WEBSITES

TERRA

1. <http://noticias.terra.com.pe/buenas-noticias/la-semilla-de-algodon-fuente-de-nutrientes-para-los-humanos,a6771c15454a3310VgnVCM4000009bf154d0RCRD.html>

BRASIL

INFORMATION/NEWS WEBSITES

DIARIO VIRGULA

1. <http://virgula.uol.com.br/ver/noticia/lifestyle/2011/11/20/288638-semente-de-algodao-pode-ser-uma-rica-fonte-de-nutrientes>

TERRA

1. <http://noticias.terra.com.br/noticias/0,,OI5479008-EI188,00-Semente+de+algodao+pode+ser+uma+rica+fonte+de+nutrientes.html>

MEXICO

PRESS

DIARIO LA JORNADA

1. <http://www.jornada.unam.mx/ultimas/2011/11/13/12315762-analizan-la-posibilidad-de-que-algodon-sea-para-consumo-humano>

DIARIO EL INDEPENDIENTE

1. http://elindependientezac.com/index.php?option=com_content&view=article&id=9758:analizan-la-posibilidad-de-que-algodon-sea-para-consumo-humano&catid=59:ciencia-y-tecnologia&Itemid=58

DIARIO DE LOS MOCHIS

1. <http://eldiariodelosmochis.com.mx/publicacion.php?id=51541>

SPAIN
PRESS

DIARIO EL DIA

1. <http://www.eldia.es/2011-11-12/sociedad/9-semilla-algodon-fuente-nutrientes-alimentacion-humana.htm>
2. <http://www.eldia.es/2011-11-13/sociedad/1-semilla-algodon-fuente-nutrientes.htm>

DIARIO REPUBLICA

1. http://www.republica.com/2011/11/13/la-semilla-de-algodon-una-fuente-de-nutrientes-para-la-alimentacion-humana_411179/

DOMINICAN REPUBLIC
PRESS

DIARIO EL NACIONAL

1. <http://www.elnacional.com.do/internacionales/2011/11/12/101361/print-no-pics>

COSTA RICA
PRESS

DIARIO EL PAIS

1. <http://elpais.cr/articulos.php?id=57412>

GUATEMALA
PRESS

PRENSA LIBRE

1. http://www.prensalibre.com.gt/vida/ciencia/semilla-algodon-nutrientes-alimentacion-humana_0_589741198.html